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ABSTRACT

An evaluation of the implementation process for the electronics articulation program at the Community College of Rhode Island was undertaken to identify the factors and features of the program that contribute to the attainment of its articulation goals. Information for the evaluation was obtained by reviewing documents and records, observing programs, and interviewing key personnel from the community college and secondary school personnel. The college's administrators and its coordinator of the articulation program were all found to have a strong commitment to the articulation effort. Although the high school students contacted about the program had a positive view of the program, they did express several concerns about postsecondary education. These included concerns about their ability to pass the postsecondary courses, the quality of postsecondary instructors, and the lack of hands-on experiences afforded by postsecondary education. Among other things, it was concluded that (1) efforts should be made in both the secondary and postsecondary components of the program to enroll more female and minority students; (2) students, teachers, administrators, employers, counselors, student affairs personnel, and other interested individuals should all be involved in the program's goal setting and planning processes; (3) the electronics articulation program should be tied closely with other phases of the college's strategic planning; and (4) consideration should be given to the sharing of facilities and equipment by the college and local secondary schools. (MN)

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EVALUATION OF THE ELECTRONICS ADVANCED PLACEMENT IMPLEMENTATION PROCESS IN THE COMMUNITY COLLEGE OF RHODE ISLAND

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FOREWORD

If personnel in the Community College of Rhode Island (CCRI) and in the secondary schools are to make substantial progress in improving the processes for planning and implementing the electronics articulation program, it is essential that they have information about the effectiveness and efficiency of the activities undertaken. CCRI and the cooperating secondary schools have placed great importance on providing an electronics articulation program that is beneficial to the students. It is essential that CCRI and secondary school policymakers and decision makers have information that allows them to optimize their limited resources to provide the best electronics articulation program possible.

This report assesses the processes currently used to initiate and implement the electronics articulation program in the Community College of Rhode Island. The target audiences for this report are CCRI and secondary-school policymakers and decision makers responsible for the electronics articulation program.

The study evaluators are indebted to CCRI staff members who arranged for the evaluation. Special appreciation is expressed to President Liston, Dean of Instruction Crowley, and Electronics Articulation Program Coordinator Walsh. The cooperation of all of those interviewed as a part of this study contributed greatly to the evaluators' understanding of the program.

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EXECUTIVE SUMMARY

An evaluation of the implementation process for the electronics articulation program at the Community College of Rhode Island (CCRI) was undertaken to determine the factors and features that contribute to the achievement of the articulation program goals. Information was collected by reviewing documents and records, observing programs, and interviewing key CCRI and secondary-school personnel.

Recommendations

Based on analysis and synthesis of the information collected, the following recommendations are made:

- Staff of CCRI and secondary schools should continue to strive for goals that are realistic and attainable.
- Efforts should be strengthened to enroll females and minorities.
- A program evaluation process should be in place to provide formative and summative feedback to CCRI and secondary-school personnel regarding articulation goal attainment.
- Students, teachers, administrators, employers, counselors, student affairs personnel, and other interested individuals should be involved in the goal setting and planning processes.
- The strong support and commitment for the electronics articulation program should continue to be visible from the CCRI governing board, president, staff, and secondary teachers.
- Efforts should be made prior to meetings of CCRI and secondary school staffs to determine potential problems that may be disruptive to the articulation effort.
- Electronics articulation planning should be tied closely with other CCRI strategic planning.
- A continuous flow of information about the progress of the electronics articulation program should be maintained.

- Key CCRI administrators should continue to exercise aggressive leadership for the electronics articulation effort.
- CCRI and secondary teachers should meet on a regular basis to update the curriculum and the examination for advanced placement.
- A cooperative education program should be established for the students in the electronics program.
- A timeline needs to be established for the administration of the advanced placement examination.
- The CCRI staff should supply secondary vocational education teachers with information about the articulation program.
- A freshman orientation course should be offered during fall term of each academic year.
- Key staff should receive institutional support (e.g., travel, lodging, salary) to visit exemplary articulation programs.
- Staff development programs should be conducted for staff who are planning and implementing articulation programs.
- Communication channels and areas of responsibility must be clarified regarding the electronics articulation program and the overall institutional articulation effort.
- Consideration should be given to the sharing of facilities and equipment by CCRI and secondary schools.
- An extern program that would allow prospective high school students an opportunity to spend one or two days with a CCRI student in the electronics program should be instituted.
- CCRI electronics alumni should be used to tell students about the CCRI electronics program.
- Receptions for potential CCRI electronics students hosted by current CCRI electronics students, CCRI electronics alumni, CCRI faculty, and employers should be held.

- Electronics presentations should be made to eighth and ninth graders by CCRI staff.

CHAPTER 1

INTRODUCTION

Eighty percent of the adult population in our nation do not hold bachelor's degrees, nor do they need them to perform their jobs. According to Parnell (1985), however, the existing high school tracks for the middle 50 to 60 percent of our high school students who are not college bound are not appropriate for preparing young people to take their places as the workers of tomorrow. Furthermore, Parnell (1986) has noted that

> the academic and vocational desert of American education . . . is the high school general education program. Too many young people are receiving an unfocused general education which relates to nothing, leads to nothing, and prepares for nothing. It certainly does little to promote continuity in learning or to build personal confidence and self-esteem. (p. 16)

The deficiencies are particularly troublesome for the one out of four students who does not complete a high school program.

In an effort to remedy the situation described by Parnell, articulation programs have received increased emphasis. Those programs serve to link the final two years of high school with postsecondary technical education programs. Many such articulation efforts have been initiated during the last five years. For example, an earlier study by Long et al. (1986) found that nearly 30 percent of the nation's two-year colleges have developed articulation agreements with their constituent secondary institutions. Secondary-postsecondary program articulation, which has been described (Bushnell 1978) as "a planned process linking two or more educational systems within a community to help students make a smooth transition from one level of instruction to another, without experiencing delays or loss of credit" has increased quite rapidly during the past three to four years.

Despite the existence of a number of articulation programs, there is relatively little evaluation information regarding either the effectiveness of those programs in addressing the kinds of shortcomings noted by Parnell, their impact relative to the benefits sought by their initiators, or the most appropriate processes for implementing articulation programs. It is time in the evolution of articulation programs to fill this informational void through program evaluation.

Study Framework

In a 1985 National Center for Research in Vocational Education study, a review of numerous articulation programs re-

vealed that three distinct models or types of articulation programs are in use nationwide: advanced placement, pretechnical, and vocational-technical. According to Long et al. (1986), advanced placement shortens the amount of time needed to complete the postsecondary component of the program, pretechnical programs provide students with advanced technical skills through improved preparation, and vocational-technical programs reduce duplication of learning. The selection of one of these three types of programs is determined by what the institutions want to achieve with an articulation program.

Generally, when secondary and postsecondary institutions enter into articulation agreements, they anticipate that a number of potential benefits or outcomes will result. Several of those anticipated outcomes are as follows:

- o Postsecondary Institutions
  - Increased enrollments from related secondary institutions
  - Better community public relations
  - Improved quality of incoming students
  - Enhanced student retention in associate degree programs
- o Secondary Institutions
  - Reduced student attrition
  - Increased vocational enrollments due to greater attractiveness of programs to potential students and their parents
  - Reduced repetition of previous learning
  - Lessened time requirements for completing postsecondary programs

The available research clearly reflects the concern with this multiplicity of potential outcomes. For example, in one earlier study, the Minnesota Research Coordinating Unit for Vocational Education (1975) emphasized the savings in student time that can result when secondary and postsecondary occupational programs are properly articulated. Bender (1973) listed a number of principles for articulation while emphasizing the avoidance of unnecessary repetition of learning. Knight and Knight (1985) showed concern for public relations and trust, whereas Hoerner and Austin (1980) and McKinnerney (1974) focused on outcomes of primary interest to faculty members (such as student quality and program persever-

ance). Bushnell (1978) noted the need to focus on people rather than on purely administrative concerns such as enrollment increases.

Winter and Fadale (1986) addressed the issue of excessive attrition at community colleges. DeHart (1985) argued, however, that it was inappropriate to evaluate the strength of such institutions solely on the basis of degree completion rates, since degrees measure so little of what is done by community colleges. Nevertheless, it was held by many proponents that one expected outcome of articulation programs is an enhanced rate of program completion on the part of students whose high school programs were linked to their postsecondary areas of interest.

In addition, postsecondary educators frequently complained about the low quality of recent high school graduates. The National Commission on Excellence in Education stated it this way:

> More and more young people emerge from high school ready neither for college nor for work. This predicament becomes more acute as the knowledge base continues its rapid expansion, the number of traditional jobs shrinks, and new jobs demand greater sophistication and preparation. (Gardner et al. 1983)

It has been argued that articulation programs can help to improve the quality of students who enter postsecondary institutions from their articulated high schools.

Finally, maintaining enrollments in community colleges and similar postsecondary institutions is a continuing concern for those responsible. Given demographic changes and increased competition for traditional college-age youth, colleges find it necessary to market themselves more and more aggressively. One form of marketing is program articulation. It is assumed that postsecondary institutions with articulated programs will attract more students from their constituent high schools.

Clearly, expectations with regard to the outcomes held by the different institutions and related personnel involved in articulation agreements tend to be quite variant. Therefore, any evaluation of such programs must take this multiplicity of expectations into account and incorporate appropriate evaluation processes to delineate these different expectations.

Framework

The basic framework underlying the evaluation is presented in figure 1. Shown in figure 1 are a number of different types of variables:

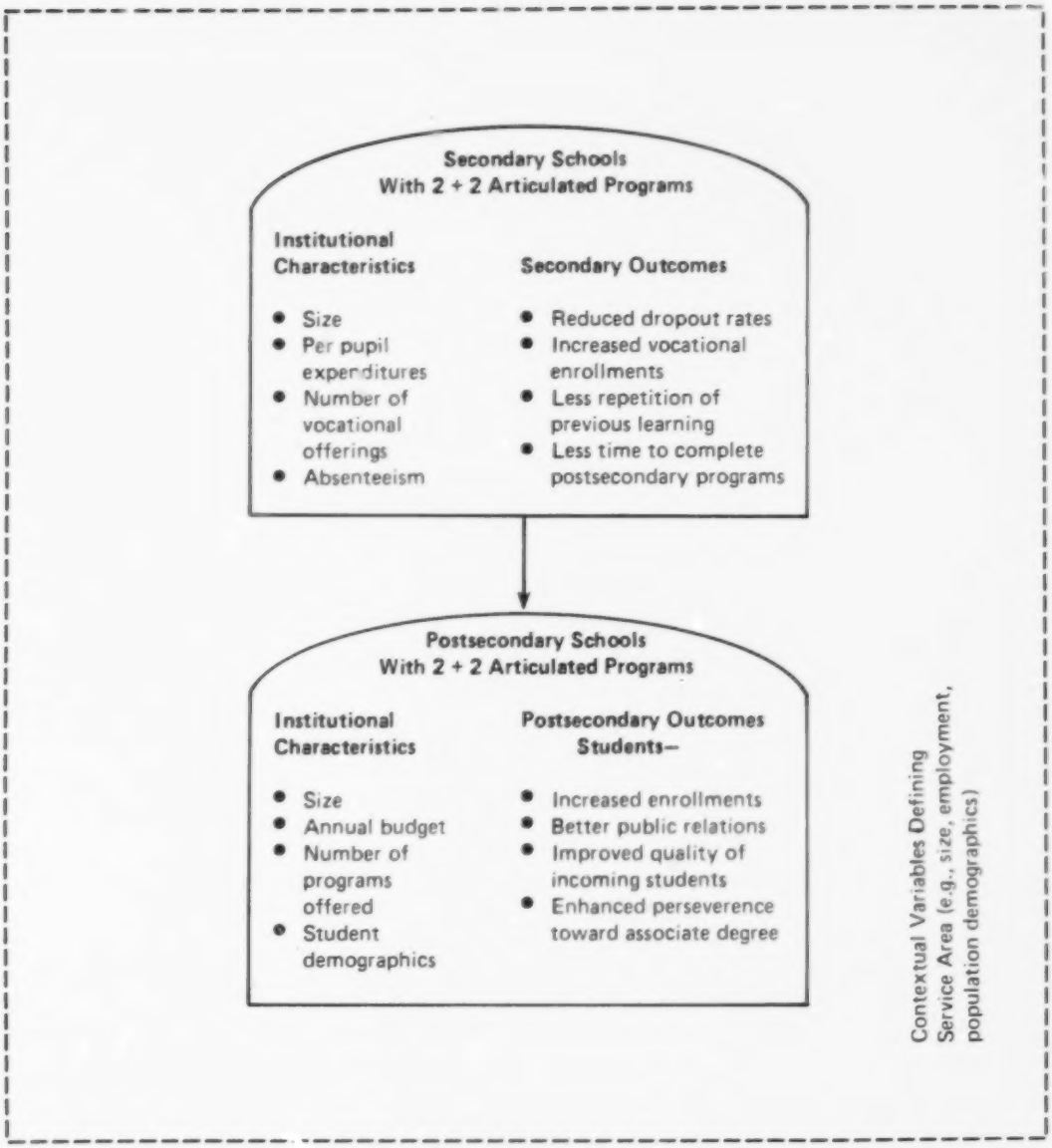

Figure 1. Framework for evaluating articulation program

- o Contextual variables serve to describe the demographic and economic conditions in the service area addressed by the articulated institutions.

- o Institutional characteristics are defined by variables such as size of student body, type of institution (e.g., secondary-community college, postsecondary-vocational/technical), number of programs vs. number of articulated programs, per pupil expenditures, and the like.

- o Projected outcomes are of concern to both secondary and postsecondary institutions and were described in the literature presented earlier.

Background

The Community College of Rhode Island (CCRI) and three cooperating vocational-technical schools are currently in an electronics articulation program. The articulation effort was initiated during the 1986-1987 school year. School staff members had insufficient time to initiate and complete certain desirable aspects of the articulation program.

The electronics articulation program at the postsecondary level is intended to: (1) improve the opportunities for students in electronics programs, (2) attract more students, and (3) meet better the needs of employers. At the high school level, the articulation program is expected to: (1) attract more students to vocational courses, (2) motivate student performance, and (3) aid in retention of students.

The electronics advanced placement process is characterized by the following:

- o Offering college credit for student academic achievement in electronics programs in Rhode Island vocational-technical schools

- o Testing of high school seniors

- o Giving students college credit for advanced placement

- o Providing high school student tours of the CCRI facilities

- o Fostering interaction amongst high school faculty and community college faculty

Objectives

The objectives of the evaluation were to--

- describe the relative success of the electronics advanced placement process in achieving its objectives,
- identify factors and features that contribute to the achievement of articulation program goals, and
- provide recommendations concerning the processes used to develop the articulation program.

CHAPTER 2

STUDY PROCEDURES

In this chapter, information is presented about the evaluation guidelines, site visit procedures, and data analysis.

Evaluation Guidelines

Prior to the on-site evaluation, major issues were identified for the evaluation. These areas were identified from literature reviews and the evaluators' experiences with vocational-technical education, program articulation, career development interventions, and program evaluation. The issue areas further extended the evaluation framework (figure 1) and served as a basis for generating questions to focus the interviewing, observing, and reviewing processes. The issue areas and questions are presented in the appendix.

Site Visit Procedures

The primary evaluation methods used in this study were on-site interviews, observations, and record/document reviews. These data gathering methods were reinforced by findings from other articulation research and evaluation studies.

Interviewing was the major method used for collecting data. Interviewing methods were based upon the elite (open-ended) technique developed by Dexter (1970). Within this framework, the interviewer sets the context of the interview and then allows the interviewees to respond in their own manner. During the interview, each interviewee was treated in a way that stressed his or her definition of the situation. He or she was encouraged to structure the account of the situation. Finally, he or she was allowed to individually introduce his or her notions of what he or she regarded as relevant instead of relying upon the evaluator's notion of relevance.

Initial contact with personnel at CCRI enabled the evaluators to establish interview schedules and to identify records and documents for review. At the postsecondary level, interviewees included the CCRI president, vice president for academic affairs, dean of instruction, electronics teachers, counselors, admissions officer, and students. At the secondary level, the interviewees included teachers, counselors, and students. A total of 29 individuals were interviewed. Records and documents were reviewed prior to arriving at the site as well as during the site visit. Examples of records and documents included school catalogs, placement reports, articulation agreements, curriculum materials, tests, and so forth. After each day's interviews, observations,

or record/document reviews, the evaluators discussed the interactions, solved any emerging problems, and planned the subsequent work. Modifications and adjustments of language approach and emerging issues were made on a consensus basis.

Data Analysis

Patton (1980) writes, "There are no formal, universal rules to follow in analyzing, interpreting, and evaluating qualitative data" (p. 268). Patton's definition of analysis and interpretation is helpful in understanding how the information was analyzed.

> Analysis is the process of bringing order to the data, organizing what is there into patterns, categories, and basic descriptive units. Interpretation involves attaching meaning and significance to the analysis, explaining descriptive patterns, and looking for relationships and linkages among descriptive dimensions. (p. 238)

The evaluators described the patterns that appear to be present in the data. These patterns represent the perspective of the evaluators based on their understanding of the data collected. As with any data, the readers will judge these interpretations in view of their own understanding of secondary and postsecondary vocational-technical education articulation programs and the environment in which such programs operate.

The analysis of the information focuses on the study problem and the issue areas presented earlier. The notes collected from the interviews, observations, documents, and records were written by the evaluators. As this initial write-up was being done, the data were organized according to the issue areas.

The first step of analysis was the coding of the information. As the coding continued, it became apparent that the initial listing of issue areas was incomplete. Additional issue areas were added, and some issue areas were combined or defined in slightly different ways. As the evaluators worked with the data, there was a continuing search for recurring regularities in the data. These regularities merged into patterns that could be assigned to homogeneous issue areas. It is important to note, once again, that the ways by which the data were categorized (issue areas) were always driven by the objectives of the evaluation.

Both evaluators worked on the data analysis. This provided opportunities for diversity of opinions to surface. The comparison and discussion of these differences frequently led to the emergence of important insights about the factors contributing to the attainment of articulation goals.

As the evaluators analyzed the data, they continued to search for relationships of factors (variables) and articulation program success. The determination of relationships was a time-consuming process. The effort was accurately described by Patton (1980) as a process of

> ...constantly moving back and forth between the phenomenon of the program and our abstractions of that program, between the descriptions of what has occurred and our analysis of those descriptions, between complexity of reality and our simplifications of those complexities, between the circularities and inter-dependence of human activity and our need for linear, ordered statements of cause effect...(p. 268)

The effort frequently resulted in other possible finding being suggested and a determination being made to see if there were sufficient data to support the new suggestion.

CHAPTER 3

FINDINGS AND RECOMMENDATIONS

In this chapter, findings and recommendations are presented concerning goals and articulation outcomes; management, planning, and evaluation; community college governance, administration, and structure; curriculum; student characteristics; support services; staffing, financial support, facilities, and equipment; and promotion.

Goals and Articulation Outcomes

At the community college level, the written goals for the electronics articulation program are to (1) improve the opportunities for students in electronics programs, (2) attract more students, and (3) meet better the needs of employers. At the secondary level, the written goals state that the articulation program is expected to (1) attract more students to vocational courses, (2) motivate student performance, and (3) aid in retention of students. Interviewees at the postsecondary level indicated that student retention, collaboration, and the attraction of students of higher ability levels were also goals of the articulation effort. Attracting better qualified students was also expressed as a goal for the secondary programs by most of the interviewees.

The CCRI president, vice president for academic affairs, dean of instruction, and coordinator of the electronics articulation program have provided strong commitment for the electronics articulation program. The CCRI and President Liston are viewed as being responsive to state needs for community-college programs. President Liston views the electronics articulation program as the implementation of a standard for developing additional articulation programs.

Students generally have unrealistic salary expectations, but they indicated that money and fun were major reasons for enrolling in vocational-technical education programs. They saw the training as enabling them to earn money while in school or immediately after leaving school and they regarded the courses as being fun while at the same time providing valuable learning experiences.

Through program observations and interviews the impression was gained that very few females or minorities are enrolled in the electronics programs at the secondary schools and at CCRI.

High school students expressed several concerns about postsecondary education. Among these concerns were their ability to pass the postsecondary courses, the quality of postsecondary instructors, and the lack of hands-on learning experiences.

Recommendations

The following recommendations are made concerning goals and articulation outcomes. It should be noted that, at the time of this evaluation, it was impossible to make any determination concerning program outcomes since there are currently no students enrolled in the electronics articulation program and no students have completed the program.

- CCRI staff and secondary school staff are encouraged to continue to strive for goals that are realistic and attainable. As the program achieves a more substantial place in the participating schools, it will be desirable to review the goals and to strive to achieve goals that are somewhat more difficult to attain.

- Efforts should be strengthened to enroll females and minorities in the electronics programs at the secondary level and at CCRI.

- Efforts should begin immediately to ensure that a program evaluation process is in place that will provide formative and summative feedback to CCRI and secondary school personnel regarding progress toward achieving the articulation goals. This evaluation process should place heavy emphasis on understanding the articulation program, communication among key personnel, involvement of stakeholders, and the continuous need for information by policymakers and decision makers. Such an evaluation process would be expected to result in increased stakeholder support for articulation efforts, meaningful information for policymakers and decision makers, context-specific information about the electronics articulation program, and improved chances for consensus among key personnel.

- All stakeholders should be involved in the goal-setting process. Students (current and former), teachers, administrators, employers, counselors, student affairs personnel, and other interested individuals need to be a part of the goal determination process. This process could be managed in a variety of ways, including focus groups, surveys, general meetings, or small group techniques (e.g., Nominal Group Technique, Ideawriting, Policy Delphi).

Management, Planning and Evaluation

Planning for the electronics articulation program received a big boost by the commitment of CCRI President Liston. That commitment was evidenced by the president's statement: "Articu-

lation is an institutional thrust--a long-term effort. To be successful, there must be a strong partnership developed between the community college and the high schools." The importance of such a commitment from the president's office cannot be overemphasized; it opened appropriate channels for commitment to be expressed and exercised by the vice president for academic affairs, the dean of instruction, and CCRI faculty.

The electronics articulation program is a larger part of a CCRI institutional planning effort that emphasizes management by objectives. Each CCRI major division identifies long-and short-range goals and submits these to the CCRI president prior to the annual goal-identification planning meeting.

A number of strengths and weaknesses of the electronics articulation program planning process were identified. The following strengths were noted:

- Support of the CCRI governing board for the articulation effort
- Commitment of CCRI President to program articulation
- Commitment of CCRI staff and secondary teachers to program articulation
- Ease of communication between CCRI and secondary schools' staffs
- Involvement of faculty early in the articulation program with meetings scheduled once a month
- Opportunities for staff at the postsecondary and secondary levels to learn about each others' program
- Strengthened curriculum at the secondary level
- Interest and willingness of CCRI and secondary teachers to work together
- A formalized, written program articulation agreement

The following weaknesses of the planning process were noted:

- Secondary school personnel thought CCRI personnel were accusing them of inferior teaching initially.
- The office of student affairs was not involved in the articulation effort.
- Students and employers were not involved in the planning process.

- Communication from CCRI to the secondary directors of vocational education was inadequate.

- CCRI was perceived as too reactive versus proactive regarding program articulation.

- Leadership and financial support from state agencies was less than desirable.

- The articulation program-planning process reflected, to some extent, the long-range planning processes of CCRI. Most interviewees thought these processes should be improved.

- The secondary students were not properly prepared for the examination.

- A continuing effort to bring CCRI and secondary teachers together for purposes of coordinating the articulation program was lacking.

- The CCRI admissions officer either was not informed about or was not involved with the electronics articulation effort.

- Only three out of nine secondary schools were involved in the articulation program.

- A formalized evaluation process for the articulation program was lacking.

- Clearly defined responsibilities for planning and implementing the articulation effort are not apparent.

- Mutual respect and trust between CCRI and secondary schools was found missing.

Recommendations

The following recommendations are made concerning management, planning, and evaluation.

- The strong support and commitment of the CCRI governing board and the CCRI President for the electronics articulation program should be continuous and highly visible.

- CCRI staff and secondary teacher commitment should also continue and be made more visible through regularly scheduled meetings.

- Other groups of key stakeholders should be more actively involved in planning and advising roles concerning the

initiation and conduct of articulation efforts. These groups include current students, former students, employers, and other individuals interested in or affected by the electronics articulation program. These groups of individuals could be included in meetings of the CCRI and secondary-school staff or they could be organized as separate groups. Joint meetings will result in more efficient time utilization for program coordinators.

- Efforts should be made before the formal initial meeting of CCRI and secondary school staffs to determine potential problems that may be disruptive and lead to less than optimal participation in the articulation effort. Individual conferences and informal dinner or luncheon meetings may serve to clarify problems and reduce tensions in more formal meetings.

- Electronic articulation planning efforts should be closely tied with CCRI strategic planning and should be coordinated with CCRI program articulation efforts.

- A continuous need exists for information about the progress of the electronics articulation program. This information should be supplied by a continuous program evaluation that is carefully monitored and stakeholder based. External evaluators should be used as needed to provide diverse viewpoints and to lend credibility to the evaluation information.

- CCRI personnel need to take an aggressive stance in regard to promoting, planning, and implementing articulation programs. This does not mean an autocratic approach is desirable, but it does mean that there should be no doubt in the minds of CCRI staff and secondary school staff about the commitment of CCRI to the success of the articulation effort.

- CCRI staff should be assigned responsibility for ensuring that information about the articulation effort is provided for all key personnel.

Community College Governance, Administration, and Structure

The interviewees were generally very complimentary of the leadership provided by the community college in initiating and implementing the electronics articulation program. However, some interviewees indicated a desire to have even more leadership from the community college. Several interviewees indicated that the high school directors of vocational education need to make the articulation effort a high priority.

Recommendations

The following recommendations are made concerning community college governance, administration, and structure.

- o President Liston, Dean Crowley, and teachers initiating articulation programs should continue to exercise aggressive leadership for the articulation effort. This aggressiveness might be displayed through personal contacts with key persons, presentations in small group meetings of key CCRI and secondary school staff, presentations to civic groups, and news releases.

- o CCRI staff needs to devote considerable attention to developing a more cooperative spirit for articulation by the high school directors of vocational education.

Curriculum

The state vocational education curriculum for secondary electronics programs served as the basis for curriculum determination. Teachers interviewed indicated the material was inadequate. Teachers generally believed they were doing a superior job to the state curriculum guide.

Electronics students at the secondary and postsecondary levels do not have an opportunity to participate in cooperative education. Most students and teachers expressed a desire to implement cooperative education programs.

Postsecondary students interviewed expressed the opinion that they did not receive adequate orientation in instrumentation. The problem stems from the diversity in types and quality of equipment available in the secondary schools.

Students expressed concern about being able to pass the advanced placement test. This concerned seemed to be fostered by student unawareness of when the exam would be administered and uneasiness about the content of the examination.

Recommendations

The following recommendations are made concerning curriculum.

- o As technology for electronics increases rapidly it will be necessary to continuously update curriculum materials and teaching strategies. CCRI and secondary teachers should meet on a regular basis to update the curriculum and the examination for advanced placement. Teachers should

monitor the work setting to determine changes in jobs and the way jobs are performed so that necessary curriculum changes can be made. Teacher-industry exchange programs would help keep teachers current concerning the new developments in electronics. Advisory groups of employers and former students can provide valuable advice concerning the relevance of curriculum materials and performance examinations.

- Every effort should be made to establish cooperative education as a significant part of the electronics program. Cooperative education is an opportunity for students and employers to work jointly in providing students with career-related experience prior to graduation while meeting business needs at the same time. The three forms of co-op experience are as follows:

  - Alternating: Students alternate periods of attending college with periods of employment.

  - Parallel: Students work parttime while attending college.

  - One-time co-op/internship: Students work fulltime for one work period.

  The employer benefits are many:

  - Cost-effective recruiting tool

  - Observation and evaluation of potential employees

  - Reliable source of pre-professionals

  - No permanent commitment required

  - Frees permanent employees and allows greater productivity during peak business cycles

  - Lower training costs

  - Employer input into the educational process

  The student benefits are many:

  - Gain professional experience while in school

- Sample specific jobs within career areas
- Make valuable contacts for future networking
- Sample different work environments (work setting, type of employer/industry, geographic location)
- Gain insight into the real world application of concepts learned in school
- Develop self-confidence/independence
- Gain insight into using electives to strengthen academic program
- Earn money (most work assignments do include a salary)

Cooperative education is increasingly being viewed by business and industry as a logical and rational way for students to enter the world of work for full-time positions.

o A timeline needs to be established for the administration of the advanced placement examination. Students should be introduced to the articulation process and provided a study guide to prepare them for the examination. These activities should occur no later than January of the students' senior year. In March, students should be provided a sample test so they can be further counseled and advised in preparation for the exam. The actual exam would then occur in May. Students should be informed of the results of the examination as soon as possible by a letter from the faculty or an academic advisor.

Student Characteristics

Currently, no students are enrolled in the electronics articulation program at CCRI. Although five students qualified for enrollment, none of the five chose to enroll in the electronics program. This may be partially explained by the lateness of the examination, newness of the program, and insufficient information about the program.

Electronics students are generally perceived to be "better" than the average community college and secondary students. Secondary and postsecondary students in the electronics program generally perceive themselves as having higher mathematical

ability and stronger reading skills, as well as being more serious about their program of study than their peers in other programs of study. However, in some secondary schools, the competition for students in other high-tech programs and the general decline in the number of secondary students has resulted in somewhat lower quality students in the electronics program. Additionally, interviewees noted that the higher caliber students usually decide to attend a four-year college.

Most of the high-school students decide about entering the electronics program during the eighth or ninth grade. Students indicated that vocational education teachers were the primary source of information and influence concerning their decision to enter electronics. Parents and peers were other primary sources of influence.

Recommendation

The following recommendation is made concerning student characteristics.

- Since students consider vocational education teachers as their primary source of information concerning their decision to enter electronics, the CCRI staff should make every effort to supply secondary vocational-education teachers with information about the articulation program.

Support Services

A general orientation program for CCRI students is held one day before classes begin. This program serves a useful purpose but should not be considered as adequate for meeting the orientation needs of potential electronics articulation program students.

The processes for students to transfer programs, drop programs, and drop out of school lack an orientation to student and college needs. Students wishing to transfer programs get some advice from teachers, but receive no help from CCRI counselors due to lack of a formalized process by which students drop courses or programs.

Technical courses and English as a Second Language (ESL) are frequently scheduled during the same time periods. This means that ESL students in technical courses frequently cannot master the material and either drop out of school or flunk out of school.

The placement of students in technical areas is done mostly on the basis of teacher contact with potential students. Counseling services had minimal impact on technical enrollments.

Recommendations

The following recommendations are made concerning support services.

- Since retention is a goal of the electronics articulation program at CCRI, a one-credit college orientation course offered during the fall term of each academic year can prove beneficial in attainment of the goal. The design of the course would be to help students assess their abilities, values, and interests as well as to develop their coping and studying skills. This course would further be designed to increase student awareness of college resources while developing a strong peer support group and a bond with the academic adviser assigned to teach it.

- Communicating the details of the electronics program in a timely fashion is critical in the articulation process as well. A freshman orientation course can be a proactive approach to the problem of students' selection and enrollment in courses not applicable to the articulation effort.

Staffing, Financial Support, Facilities, and Equipment

Financial support for planning the implemention of the electronics articulation program appeared adequate. However, it is not clear that there is financial support to continue certain activities, such as the regular meeting of key postsecondary and secondary staff members, especially teachers.

CCRI is in the process of employing a person to coordinate articulation programs college-wide. However, the relationship of this campus-wide position to the electronics articulation effort is not specified.

Facilities and equipment at CCRI are generally more sophisticated and more up-to-date. As expected, numerous differences exist in facilities and equipment between CCRI and the secondary schools. At the present time, no sharing of facilities or equipment among postsecondary and secondary institutions is occurring.

Students were very complimentary of the postsecondary electronics teachers. They were especially appreciative of their willingness to help.

Recommendations

The following recommendations are made concerning staffing, financial support, facilities, and equipment.

- Key staff responsible for the implementation of the electronic programs should be supported (e.g., travel, lodging, salary) to visit exemplary articulation programs. After the electronics articulation program has been in operation a sufficient period of time to have program results, staff should be supported to participate in regional and national meetings to describe program results.

- Staff development programs should be designed and implemented for staff who are planning and conducting articulation programs. These programs might be conducted jointly with the secondary schools with a portion of the program designed specifically for CCRI staff. Outside expertise should be sought to assist staff in the conceptualization of their articulation efforts and in the evaluation of the overall effort. Outside expertise should also be used to deal with those areas that are sensitive and difficult for current staff to handle without long-range detrimental effects (e.g., turf, curriculum content, evaluation criteria). The staff development program should highlight the continuing commitment of President Liston and Dean Crowley. Properly organized, the staff development efforts can serve as a catalyst for enhancing a working relationshio between academic affairs and student affairs, which is an essential ingredient if program articulation is to reach its optimal effectiveness and efficiency.

- Communication channels and areas of responsibility must be clarified regarding the electronics articulation programs and the overall CCRI articulation effort. These efforts should be mutually supportive. They must not be viewed as duplicative and confusing by significant CCRI target audiences.

- Consideration should be given to sharing facilities and equipment by CCRI and the secondary schools. Distances may make this prohibitive but, given the investment necessary to equip some programs, the possibility of sharing some costs and equipment should be investigated.

Promotion

Most interviewees expressed the belief that CCRI does a less-than-adequate job of providing information about its programs to target audiences. Furthermore, staff members do not appear to coordinate efforts concerning responsibilities for program

promotion. Faculty members and admissions personnel expressed concern about their roles in promoting the electronics articulation program. Some interviewees, including personnel key to student recruitment, had minimal information about the articulation program.

Students expressed concern about the tour of the electronics program. They toured the labs and saw a number of pieces of equipment. The students indicated they would have preferred a hands-on-experience.

Recommendations

The following recommendations are made concerning promotion

- o Develop an extern program that would allow prospective high school students to spend one or two days with a CCRI student in the electronics program. The CCRI student then becomes a mentor for the high school student as he or she enters CCRI. Such an extern program would provide an opportunity for students to--

    - broaden their perspective of career opportunities that might be available upon graduation,

    - understand how coursework at CCRI will prepare them for employment, and

    - examine their expectations and attitudes about their career choice while participating in the CCRI electronics program.

- o Develop a program that uses CCRI electronics alumni to go to high schools to tell students about the CCRI electronics program and how it helps them in their current job.

- o Hold a reception or dinner for potential CCRI electronics students, current CCRI electronics students, and CCRI electronics alumni. Use the occasion to convey positive images about the CCRI electronics program and to allay fears potential students may have about entering CCRI.

- o Given that students make decisions about entering high school electronics programs at the eighth and ninth grade levels, CCRI staff need to work with high school counselors and high school electronics teachers concerning ways that information about the electronics articulation program can be delivered to potential students and their parents.

- o A career night should be held that would involve faculty from CCRI and the high schools, industry representatives

(ones likely to hire CCRI electronics graduates), CCRI electronics program graduates, and parents.

APPENDIX

GUIDELINES FOR INTERVIEWING, REVIEWING, AND OBSERVING

GUIDELINES FOR INTERVIEWING, REVIEWING, AND OBSERVING

Issue Areas and Questions	Interviewees						
	V.P. and President	Dean of Instruction	Teachers	Counselors	Students	Employer/A.C. Member	Sec. Dir/Supv. Voc. Educ.
1. Type of Articulation Program		x	x				x
2. Program Goals							
26. What are the goals?	x	x	x	x			x
27. How were the goals developed (process) and who participated in developing the goals?		x	x	x			x
3. Program Outcomes							
26. What have been the outcomes of the articulation program?	x	x					x
27. What percentage of the students who participated in the articulation program completed the high school/postsecondary program?		x	x	x	x		x
28. Do employers regard high school students who have participated in an articulation program as being a better employment risk?		x	x	x			x
29. Have you been able to meet your goals?	x	x	x				x

Issue Areas and Questions	Interviewees						
	V.P. and President	Dean of Instruction	Teachers	Counselors	Students	Employer/A.C. Member	Sec. Dir/Supv. Voc. Educ.
4. Articulation Program Student Characteristics							
26. Average age (postsecondary)		x	x	x	x		
27. Ratio of males to females		x	x	x	x		
28. Ethnic Distribution		x	x	x	x		
29. Ability levels		x	x	x	x		
30. Participation of at-risk groups		x	x	x	x		
5. Community and Economic Characteristics							
26. What are the population characterisitcs of the area served by the articulating institutions/programs?	x	x				x	x
27. What are the major businesses/industries in the area served by by the articulating institutions?	x	x	x	x	x	x	x
28. What industries are served by the program?	x	x	x	x	x	x	x
29. How would you characterize the vitality of the major businesses/industries in the area?		x	x			x	x
30. Describe the level of cooperation among postsecondary education institutions.	x	x					

Issue Areas and Questions	Interviewees						
	V.P. and President	Dean of Instruction	Teachers	Counselors	Students	Employer/A.C. Member	Sec. Dir/Supv. Voc. Educ.
6. School Governance, Administration, and Structure							
26. Describe the linkage/relationships of secondary/postsecondary institutions with state governing agencies.	x	x					x
27. Where are the administrative control points (formal and informal) for the articulation program (secondary and postsecondary)?	x	x	x	x	x		x
28. To whom does the person with direct administrative responsibility for the articulation program report?		x	x				x
29. Are vocational and academic programs offered in the same facilities?		x	x	x			x
30. What linkages exist between academic and vocational programs?		x	x	x			x
31. How are the community/technical colleges administered?	x	x					
32. Describe any linkages you have with elected officials and state agencies.	x	x					
7. Program Staffing							
26. What are the criteria for selection of faculty?		x	x	x			x

Issue Areas and Questions	Interviewees						
	V.P. and President	Dean of Instruction	Teachers	Counselors	Students	Employer/A.C. Member	Sec. Dir/Supv. Voc. Educ.
27. What is the process for recruiting faculty?		x	x	x			x
28. What are the provisions for faculty training and orientation?		x	x	x			x
29. What are the arrangements for evaluation, promotion, and retention of faculty and staff?		x	x	x			x
30. Describe the opportunities for faculty to acquire knowledge of other settings.		x	x	x			X
8. State Policies							
26. What are the state policies on articulation?		x					x
27. What goals are specified or implied by state policies?		x					x
28. How are state policies executed?		x					x
29. What resources are made available at the state level?		x					x
30. What statewide training programs are available to assist local personnel in establishing and maintaining articulation programs?		x		x	x		x
31. How are state policies developed? Extent of dialogue and participation of state and local stakeholders?		x					x

Issue Areas and Questions	Interviewees						
	V.P. and President	Dean of Instruction	Teachers	Counselors	Students	Employer/A.C. Member	Sec. Dir/Supv. Voc. Educ.
9. Program Management							
26. How are the responsibilities for articulation program coordination divided between secondary and postsecondary levels?	x	x	x	x			x
27. What administrative levels are involved in the administration of the program?	x	x	x	x			x
10. Program Planning							
26. Describe the planning process used to implement the articulation program.		x	x	x			x
27. Describe the ongoing planning processes used to plan programs.		x	x	x			x
28. In your opinion, might the processes used in this program be transferable to other articulation programs?		x	x	x			x
11. Program Evaluation							
26. What criteria are used to evaluate the program? Who developed this criteria?		x	x	x			x
27. What processes have been used to evaluate the program?		x	x	x			x

Issue Areas and Questions	Interviewees						
	V.P. and President	Dean of Instruction	Teachers	Counselors	Students	Employer/A.C. Member	Sec. Dir/Supv. Voc. Educ.
28. What kind of data are being collected?		x	x	x			x
29. How are the data being fed back periodically to faculty and others?		x	x	x			x
30. Who is responsible for the collection and analysis of data?		x	x	x			x
31. How has the evaluation data been used?		x	x	x			x
32. Is the faculty involved in testing, data collection?		x	x	x			x
33. What are the arrangements for reporting findings?		x	x	x			x
34. Are students and other stakeholders involved in the evaluation process?		x	x	x	x		x
12. Stakeholders							
26. Who were/are the most important stakeholders in the articulation agreement? How were/are they affected/benefited?	x	x	x	x	x	x	x
27. Were/are any parties external to the education community involved in the articulation planning? Who were/are they? How were/are they involved?	x	x	x	x	x	x	x
28. How were unions involved?		x					x

Issue Areas and Questions	Interviewees						
	V.P. and President	Dean of Instruction	Teachers	Counselors	Students	Employer/A.C. Member	Sec. Dir/Supv. Voc. Educ.
13. Commitment							
26. How would you characterize the degree of commitment to articulation in both secondary and postsecondary divisions at the level of state administration, institutional administration, and faculty?	x	x	x	x			x
27. Whose commitment (office/individual) was most critical to the success of the articulation effort?	x	x	x	x			x
28. Have the levels of commitment changed over time? Who/how?	x	x	x	x			x
14. Financial Support							
26. Are high school students counted as FTE at the high school or postsecondary school when they are dually enrolled?		x					x
27. What is the source of funding for program coordinators?		x					x
28. What is the source of funding of the program?		x					x
15. Facilities and Equipment							
26. Are facilities and equipment adequate?		x	x	x	x		x
27. How are facilities and equipment shared?		x	x	x	x		x

Issue Areas and Questions	Interviewees						
	V.P. and President	Dean of Instruction	Teachers	Counselors	Students	Employer/A.C. Member	Sec. Dir/Supv. Voc. Educ.
16. Curriculum							
26. Describe the process for developing the curriculum.		x	x	x			x
27. Describe the provisions for interdisciplinary study.	x	x	x	x	x		x
28. Does it feature individualized instruction?		x	x	x	x		x
29. Describe the opportunities for independent study.			x	x	x		x
30. What kind of remediation services are available?			x	x	x		x
31. How is educational technology utilized in the program?		x	x		x		x
32. How does the program allow for self-pacing?		x	x		x		x
33. Is the curriculum competency based?		x	x				x

Issue Areas and Questions	Interviewees						
	V.P. and President	Dean of Instruction	Teachers	Counselors	Students	Employer/A.C. Member	Sec. Dir/Supv. Voc. Educ.
17. Program Support Services							
26. How do students decide whether or not to participate in the articulation program? (Students: Why did you decide to enroll in the program?)		x	x	x	x		x
27. If a student has difficulty in a postsecondary level course or with a related subject, how does the student obtain help?		x	x	x	x		x
28. What is the transportation arrangement?		x	x	x	x		x
29. At what time of day are the postsecondary courses taken?		x	x				
30. How does the articulation program use the resource center?		x	x	x	x		x
31. How are support services at participating institutions coordinated?		x	x	x	x		x
32. Are remediation services available prior to or parallel with articulated courses?		x	x		x		x

Issue Areas and Questions	Interviewees						
	V.P. and President	Dean of Instruction	Teachers	Counselors	Students	Employer/A.C. Member	Sec. Dir/Supv. Voc. Educ.
18. Awareness/Promotion							
28. What strategies do you use to make the public, students, and staff aware of the articulation program?	x	x	x	x	x	x	x
27. How successful have the strategies been and how have you measured success (criteria)?		x	x				x
28. Who is responsible and who is involved in awareness/promotion activities?		x	x	x	x		x
29. Target groups?		x	x	x			x
30. Who pays for it? Why?		x					x
19. Institutional Characteristics							
16. Faculty		x					x
27. Support Services		x					x
28. Students		x					x
29. Programs		x					x
30. Facilities and Equipment		x					x

REFERENCES

Bender, L. W. Articulation of Secondary and Postsecondary Occupational Education Programs. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1973. (ERIC Document Reproduction Service No. ED 090 392)

Bushnell, D. S. "Articulating Vocational Education at the Postsecondary Level: A National Study." Technical Education News 37, no. 3 (March-April 1978): 13-14.

Christiansen, S.; Melder, J.; and Weisbrod, B.A. "Factors Affecting College Attendance." The Journal of Human Resources 10 (Spring 1975): 174-188.

Daymont, T., and Rumberger, R. "The Impact of High School Curriculum on the Earnings and the Employability of Youth." In Job Training for Youth, edited by R. Taylor, H. Rosen, and F. Pratzner. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

DeHart, A. R. "Counterpoint." Community and Junior College Journal, April 1985, p. 71.

Gardner, D.P., et al. A Nation at Risk: The Imperative for Educational Reform. Washington, DC: National Commission on Excellence in Education, U. S. Government Printing Office, 1983.

Grubb, W.N., and Jaussaud, D. "Vocationalizing Higher Education: The Causes of Enrollment and Completion in Two-Year Colleges." Austin: University Research Institute of The University of Texas at Austin, 1984. Unpublished paper.

Hoerner, J. L., and Austin, G. L. Articulation Workshop for Key Secondary and Community College Vocational Education Personnel. Blacksburg, VA: Virginia Polytechnic Institute and State University, 1980. (ERIC Document Reproduction Service No. ED 164 988)

Hope, C. "Postsecondary Education Enrollment Responses by Recent High School Graduates and Older Adults." The Journal of Human Resources 17 (Spring 1983): 247-267.

Knight, M. E., and Knight, G. D. "Effective Articulation is Based on Trust." VocEd 60 no. 2 (March 1985): 13.

Long, J. P.; Warmbrod, C. P.; Faddis, C. R.; and Lerner, M. J. Avenues for Articulation: Coordinating Secondary and Postsecondary Programs. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1986.

McKinney, F.L.; Farley, J.; Smith, M.; and Kohan, A. Critical Evaluation for Vocational Education. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1985.

McKinnerney, B. R. Student Articulation between Secondary and Postsecondary Education: A Suggested Guide. College Station: Texas A & M University, 1974.

Minnesota Research Coordinating Unit for Vocational Education, Minneapolis. Developing Articulated High School and Post High School Vocational Technical Curricula in Minnesota: Final Report. St. Paul: Minnesota State Department of Education, Division of Vocational and Technical Education, 1975. (ERIC Document Reproduction Service No. ED 118 749)

Parnell, Dale. "The Community College Option." Youth Policy. Washington, DC: Youth Policy Institute Incorporated, 1986.

Parnell, Dale. The Neglected Majority. Washington, DC: Community College Press, 1985.

Winter, G. M., and Fadale, L. M. "Noncompleters/Successful Leavers." Community/Junior College Quarterly 10 (1986): 101-111.

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